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Publisher Citation

Mumcu, C., Fried, G. B. (2017). Analytics in Sport Marketing. Sport Management Education Journal. Published ahead of print.

Comments

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Analytics in Sport Marketing**Ceyda Mumcu****Gil Fried****University of New Haven****Abstract**

The use of analytics has been growing throughout the sport industry. Although the concepts of analytics and big data are frequently used in the sport industry and highlighted in numerous media outlets, sport management students often do not have a strong understanding of why and how analytics are important for their future career, especially as it relates to sport marketing.

This case study describes a fictitious student's interaction with an industry professional who is an expert on Customer Relationship Management (CRM) and marketing analytics in the sport industry, and the student's desire to be an intern in the Analytics Department at Major League Soccer (MLS). The study provides students information on how and why analytics are used in sport marketing and how data can be used to make decisions.

Keywords: Sport marketing, segmentation, analytics

Analytics in Sport Marketing

Hello, my name is Beth and I am a junior at 'University of K' studying sport management. I want to take you through my journey of learning about sport analytics and what analytics means to me now. This semester, I am enrolled in a junior level sport marketing class. I just completed an assignment for the class along with several classmates in my group. My assignment was to undertake a survey at a basketball game and then use that data to find what the students in attendance wanted in a game. We administered a 10 question survey at both a men's and a women's basketball game. We had 40 students complete the survey with the majority of students indicating they wanted free items to entice them to come to the games such as free food. The demographics showed that men were the primary attendees at both games and that most attendees were freshmen or juniors. This was the first survey I had ever undertaken, but I felt I learned a lot from the exercise. The assignment also gave me a chance to apply some of the statistics knowledge I learned in a stats class last semester.

As I reviewed my notes for the next class, I remembered my professor saying Charlie Shin– Senior Director of Customer Relationship Management (CRM) and Analytics at Major League Soccer (MLS) was going to be in class as a guest speaker to discuss how MLS uses CRM and analytics to make marketing decisions. I reviewed the information my professor shared on CRM and market research that night before going to bed since I am looking for an internship in sport marketing. In the morning, I went to the sport marketing class with excitement but without much insight in what to expect. The readings shed light on big data and how important data was, but I did not really know how to apply the concept to making marketing decisions. The only thing I thought about on the way to class was that our small survey sample size of 40 students really wasn't anywhere close to being big data.

Class began with the professor introducing Mr. Shin. After the brief introduction, Mr. Shin started talking about his background and how he got into the field. Although we were expecting to hear what he does at MLS, he started asking the students questions.

Mr. S: "Have you taken any statistics classes?"

I raised my hand to respond and said:

B: "We are sport management majors and our degree requires a math class and one stats class."

As I answered the question I thought he was trying to understand if we had background knowledge to understand what he was about to share with us about his job. I knew that market research required understanding statistics. As I was expecting him to get into CRM and analytics at MLS, Mr. Shin asked a follow up question.

Mr. S: "What type of statistical analyses did you learn in those classes?"

The question wasn't necessarily directed to me, but I felt like I needed to answer. He was looking at us and wondering who was going to answer. I remembered that the classes were not easy, but could not remember really anything. I also remembered several terms such as mode, mean, and median, and learning about relationships and comparing groups; but I couldn't remember the names of the analyses or any detail. I was hesitant to speak up since it seemed like he was going to continue asking questions and I wasn't sure if I had the right answers. With no one responding and Mr. Shin getting impatient I responded again to make sure the guest speaker did not think we didn't know anything.

B: "I learned about mean, median and mode and I also remember comparing groups and looking at relationships."

I looked around the room and saw the sigh of relief on the faces of my classmates. I was hoping that he wouldn't ask any more questions, but he did.

Mr. S: “How could those statistical analyses be used in sport marketing?”

And this time, I really didn't know what to say. The classes I took were taught by the quantitative analyses department and they were not taught in the context of sport industry. While I was thinking of an answer to his question, I remembered the lecture from last class session and quickly flipped through the pages in my notebook. I pretended to look busy so he would not pick on me. Luckily, Jack finally raised his hand to answer the question.

J: “We can identify if our fans are male or female, their age and income etc.”

Mr. Shin said

Mr. S: “Yes, that is right. You are talking about basic fan profiling, which is very important for us and for any sport organization. Marketing begins with knowing your customers and without understanding who your customers are and what they want from your product and organization, it is impossible to be relevant and satisfy customers.”

He went on and started lecturing on CRM and how to use marketing analytics in the sport industry and specifically at MLS. I was busy taking notes on what he was saying. He said the reason a team drafts a certain player is typically obvious: to fill a need (or needs). Similarly, the reason teams pick certain logos, colors, fonts, advertising campaigns, promotions, etc. is the same exact reason—to fill a (marketing) need. These decisions are not made randomly; but rather rely on insights derived from market research, analyses, and customer relationship management (CRM) system.

Mr. Shin elaborated that CRM and analytics have grown dramatically across all sport leagues. In 2014, more than 75% of all NBA teams were using a CRM system, and every major league sport team was expected to have a CRM system by 2016 (Zeppenfeld, 2014). CRM systems gather information on customers at every possible touch point, and the databases store

information on customer demographic, psychographic and product usage including all transactions, inquiries, and interactions between the customer and the organization. Various analyses are performed based on the availability of data and the sport organization's goals. For example, a sport team can perform cluster analysis to segment their fans, estimate customer lifetime values (CLV), generate leads via look-a-like models, predict retention of existing fans, and measure performance of marketing activities. Insights derived from data analyses allow sport teams to engage with fans effectively by sending the right message, to the right person, at the right time via the right platform (Green, 2015), build a fan base and solidify fan relationships, increase sales and therefore revenues, and make informed business decisions (Sutton, 2013).

According to Mr. Shin, MLS started to build its CRM system in 2007. MLS' primary goals are to drive the growth of MLS fan base through introducing new fans to MLS, moving non-committed and casual fans to greater avidity and converting aspirational fans to avid fans. In other words, MLS aims to move their spectators and fans up on the sport fan escalator, build a larger highly identified fan base and ultimately have a loyal (often called raving) fan base (Klie, 2012). In addition to developing a fan base, MLS uses analytics to segment the market, develop different tactics for each segment, and evaluate the performance and effectiveness of these tactics and marketing activities. In essence, the goal is to be relevant to the fans and provide the right information and product via the right tools.

For instance, MLS performs value-based segmentation via cluster analysis. Fans are grouped into segments based on their customer lifetime value, and then a profile for each segment is developed by adding demographic, geographic, and behavioral variables. The league takes this information one step further and creates look-a-like models to use in lead generations.

In the process of new customer acquisition, MLS approaches potential customers who look like their valuable fans with the hope that new customers will become valuable fans in time.

Mr. Shin continued with another example on how information drawn from their CRM system is used in designing personalized and relevant email campaigns. The CRM system stores information on fans' affinity with teams and their favorite players. Instead of sending fans general information about the league, upcoming games, or league-wide merchandise sales, they decided to send personalized emails to each fan with information and promotions about the respective team the fan identifies with. Following the email campaign, they measured the performance of personalized email campaign as opposed to the generic email campaigns. They saw that the personalized email campaign had 39% higher unique click rate comparing to static email (Alford, n.d.). In other words, personalized emails resonated with their current fans and made them act on it. By clicking through the link provided in the personalized emails, 39% more fans reached to the relevant landing webpages.

The examples Mr. Shin shared with us were easy to follow and made sense. However, there was a disconnect in my mind in regards to what kind of data were collected and how, and how the data were analyzed and interpreted which led into the design of various tactics and marketing activities. I raised my hand and asked Mr. Shin about the process of CRM.

"I understand the need to design different tactics for different avidity levels, and attract new customers who are expected to become valuable fans. But I can't put the pieces together. Could you tell us how the system works? It must be very complicated."

Mr. Shin laid out the process on the whiteboard. He drew three columns to show the process (See Figure 1). Data acquisition and the centralized database were described in the first column, customer-data analyses in the second column, and application of analyses in the third

column. MLS collects data from ticket and merchandise sales, during games via sweepstakes and other activities organized to engage fans, and online from the league's and teams' websites. He also gave examples from the sport industry pertaining to various data acquisition methods. I was fascinated with the Tampa Bay Lightning example he gave. In 2011, new management of the Tampa Bay Lightning decided to give discount at concession stands and merchandise stores to encourage season ticket sales. Instead of giving discount cards, management designed jerseys with RFID (radio frequency identification) chips embedded to a sleeve (Swedberg, 2011). Season ticket holders swiped their jersey sleeve at a checkout register to obtain discounts at concession stands and merchandise store. In return, management was able to create a "sea of blue" in the bleachers and track their season ticket holders' behaviors at the arena.

<<Insert Figure 1 about here>>

Mr. Shin continued with the analyses aspect of the CRM system and explained how data were used for segmentation and modeling. Various analyses could be performed such as descriptive and predictive analyses. Descriptive analyses are used to segment customers and develop a fan profile (Mullin, Hardy, & Sutton, 2014) using basic demographic information. With this analysis, teams try to profile fans using the best available information. Some CRM systems are capable of storing data at every touch point just like in the Tampa Bay Lightning example, which in return provides a very detailed description of customers. Based on the type of data collected, segments could be determined based on fans' state of being (demographics), state of mind (psychographics), product benefits, and product usage (Mullin et al., 2014) or nested segments could be identified by integrating couple or multiple bases. For example, fans' gender, age, ethnicity, and residential zip-code could be used to divide market into state-of-being segments and fans' loyalty and identification to create state-of-mind segments. In addition, sport

organizations divide market into segments based on product benefits and usage, and benefits and usage segmentations are closely related with state-of-mind segmentation. For instance, season ticket holders, who are loyal fans of a team, make up heavy user segment of the market and their expectation from the sport organization is different than light users and casual fans. Season ticket holders might expect exclusive benefits as a return for their loyalty to the sport organization while a casual fan looking only for entertainment and convenience.

In addition to descriptive analyses, predictive analyses are performed to determine the likelihood of future events occurring. For example, retention models are developed by using demographics, transaction history, attendance data and other fan behavior with the goal of identifying who is likely to renew their season tickets and who is not, and who has the potential to be upsold (to purchase more or better tickets). Knowing fans' likelihood of renewal may increase a sales department's productivity and lead to more effective use of resources. Retention models also detect reasons for churn which is defined as "the percentage of customers that are lost in a given period" (Laursen, 2011, p. 148). Knowing why a team's fans are not renewing might help the team develop strategies to keep their fans. Moreover, predictive analyses can be used to pinpoint what drives attendance at sporting events such as day of week, weather conditions, opponent, rivalry, type of promotions and other variables. This information has led to the growth of variable ticket pricing programs where ticket prices can be set based on various anticipated conditions (Ulam & Armas, 2014). Data can be plugged into some algorithms to help determine the optimum price point for a ticket based on close to 50 variables. The algorithms crunch the numbers in a computer using various formulas (based on weight given to various factors based on their importance) and produce a range of appropriate ticket prices.

As the last piece of the process, Mr. Shin touched on designing different marketing tactics based on the information derived from the analytics. For instance, results may suggest that fans are most likely to attend games on Friday and Saturdays. With this information a team can try to drive ticket sales and revenue growth for other games by having family oriented events at Sunday games, giveaways for weekday games, and not undertaking any additional promotions for Friday games (Levey, 2012). Lastly, he indicated that the effectiveness of marketing campaigns needs to be measured with appropriate metrics. Mr. Shin ended his speech with the progression of the process:

1. Identify a problem,
2. Conduct background research to develop a hypothesis or a research question,
3. Collect data,
4. Analyze the data, and
5. Present the results in a way that actions can be taken.

The information was overwhelming; but definitely very interesting. He drew a connection between statistics and marketing decisions that showed me that my fear of statistics was unwarranted. I was telling myself how cool an internship at MLS' Marketing Analytics department would be!

At the end of the class, I approached Mr. Shin to thank him for his presentation and ask if they had an internship program. He said they have a very strong internship program. I was very interested in the opportunity and I think it showed. He gave me his business card and indicated that if I was really interested I should send him an email and he would get back to me. I immediately sent him a thank you email and then attached my resume with a brief blurb that I

was interested in the internship. I was shocked when he responded the next day. His email was brief and thanked me for my information. His last couple lines threw me for a loop.

“If you really are interested in this internship please review the attached data and let me know what your conclusions are, and how we should proceed knowing this information.” Mr. Shin concluded by indicating this is the standard “test” he undertakes to see if someone is really the right data person to work with him.

MLS’ Disclaimer

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Appendix

In-Class Exercise 1:

Dear Potential Intern:

At MLS we utilize a five step approach to leverage data in our decision making. We first want to identify the problem or issue, we then undertake research to identify if there is already information out there or what information we need, we then collect data, analyze that data, and then present the findings to the appropriate individuals. One of the biggest issues faced by any professional team is increasing revenue without turning away fans. This is a very fine line. We can often look at historical ticket pricing information and the cost for other forms of entertainment. If we want to look at concession sales as an example we are always examining if we can generate the most revenue while keeping customers happy and providing true value to our fans. We might research past price points which teams can obtain very easily. Teams can also collect information from other sport facilities in their region and from other teams in MLS. In this context, those steps are not as difficult. The more difficult steps in this process is analyzing the data and then producing a conclusion the team can defend as a viable solution. That is your assignment, to address these last two steps.

Assume that a professional soccer team has the following price points for various concession items. The team generates average revenue of \$553,375 and average profit of \$423,200 per game. Profits are gross profit and reflect revenue minus the cost of goods (food, beverages, ice, condiments, paper goods, etc.) and do not include the cost for personnel, electricity, storage, etc.

Table 1: Sales and profit numbers for concession items per game (items sold individually)

	Price	Profit	Profit	Avg. Units	Avg.	Avg. Total
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Concession Items	Margin			Sold	Revenue	Profit
Chicken tenders	\$5.50	75%	\$4.13	15,000	\$82,500	\$61,950
Corn dog	\$4.50	80%	\$3.60	4,000	\$18,000	\$14,400
Soft-serve ice cream	\$3.50	90%	\$3.15	7,000	\$24,500	\$22,050
Deli wrap	\$7.00	60%	\$4.20	3,000	\$21,000	\$12,600
Hot dog	\$4.00	70%	\$2.80	20,000	\$80,000	\$56,000
Nachos	\$6.25	80%	\$5.00	7,500	\$46,875	\$37,500
Cotton candy	\$3.00	90%	\$2.70	3,000	\$9,000	\$8,100
Pre-packaged popcorn	\$3.75	85%	\$3.19	8,000	\$30,000	\$25,520
Bottled soda	\$4.00	75%	\$3.00	20,000	\$80,000	\$60,000
Bottled water	\$4.00	85%	\$3.40	10,000	\$40,000	\$34,000
16-ounce beer	\$6.75	75%	\$5.06	18,000	\$121,500	\$91,080
Average Total					\$553,375	\$423,200

The team administration wants to increase profit from concession sales by \$10,000 per game, and in this effort they have developed the following combo packages:

- a. Chicken tenders and soda for \$8.50; predicted to sell 2,000 packages in each game
- b. Chicken tenders and beer for \$10.00; predicted to sell 3,000 packages in each game
- c. Hot dog and soda for \$7.00; predicted to sell 4,000 packages in each game
- d. Hot dog and beer for \$8.50; predicted to sell 4,000 packages in each game

The team administration is not sure if these are the best combination packages that would produce the best sales and profit. Your task is to answer the following questions and provide recommendations to the administration:

1. Evaluate the four combo packages by reviewing prices, sales numbers, profit margin and gross profit. Based on your findings, which combo package is the best choice? Explain your answer.

2. What other combo packages would be viable? Justify your answer by using price, sales numbers, profit margin and gross profit.
3. Which concession items have room for price increase; therefore have the potential to generate additional profit for the team without upsetting fans? Justify your answer by using price, sales numbers, profit margin and gross profit.

In Class Exercise 2:

Although MLS started play in 1996, they are still challenged with growing their fan-base. In order to grow their fan base, MLS has been focused on understanding their current fan-base and acquiring new fans. Within this process, they analyze data of current and potential fans, which are acquired at various MLS games and events, and with the derived insights they aim to be relevant and attract them to their games. In this exercise, you are given a data set of 1,400 individuals who attended a meet and greet with MLS players in Long Island, NY. Staff members from MLS' Insights and Analytics division performed the collection, screening and cleaning of the data set. You are asked to analyze the data to answer the following research questions, and write a summary of findings along with suggestions (steps 4 and 5 in the case study).

1. Within the dataset, are there individuals who currently attend MLS games? If so, what is their level of usage/attendance? Who are they and how should a MLS team target them?
2. Within the dataset, are there individuals who currently do not attend, yet have potential to become an attendee? If so, who are they and how should a MLS team target them?

The guidelines are as follows:

1. Review the data set and familiarize yourself with the variables (See Excel or SPSS file)
2. Segment data based on product usage:
 - a. Which variable should be used? Why?

- b. What is the underlying reason of segmenting data based on product usage?
 - c. Perform the segmentation – what type of basic descriptive analyses could be used?
3. Once you develop segments based on product usage, create a fan profile for each user segment by reviewing demographics, price perception for tickets and concessions, social media habits, ticket purchase source, and information source.
4. After reviewing the segments, write a brief summary covering main findings, and including suggestions on how each segment should be targeted via possible advertising and promotional campaigns.

Discussion Questions:

1. In your opinion, what is the benefit of deriving insights about the current and potential customers?
2. What other variables could you use to perform the segmentation? What information would the new segmentation provide?
3. If you had the opportunity to collect data from a similar sample, what other questions would you ask? Why?

General Discussion Questions:

1. How do North American sport franchises/leagues use marketing analytics? Find marketing analytics examples in North American sport leagues and/or events to support your analysis.
2. What kind of sport analytics jobs are out there? What are job requirements? What skills are needed to hold a sport marketing analytics job?